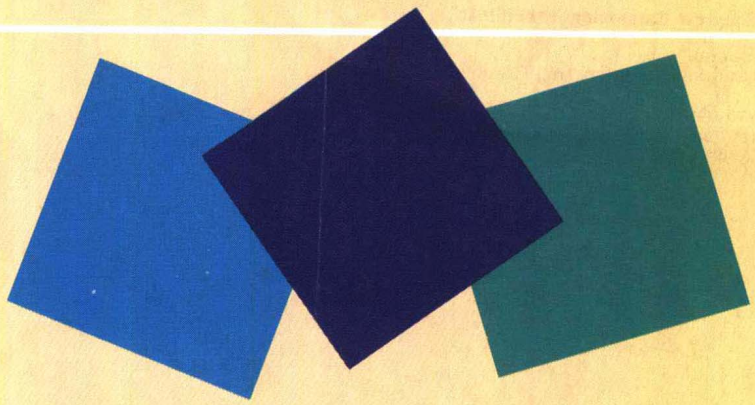


Understanding COMPUTERS

Don Cassel





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Humber College



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Preface

Understanding Computers is an introductory book about computers and their use. It is an easy reading book which primarily addresses personal computing with occasional looks into the world of mainframes. Understanding computer concepts is the base upon which applications software is presented, leading to the practical use of the PC through the use of software tutorials provided as a supplement to the book. We think students will find the book interesting and relevant to their use of computers both in school and in the business world. Instructors will find that the text supports them with coverage of the many topics needed for an introductory course as well as with the accompanying supplement package.

THE CONTENT

Understanding Computers covers the topics needed for the introductory computer course that is microcomputer oriented. Included are the topics of the uses of computers, hardware devices, data storage concepts, data communications, operating systems, programming concepts, systems analysis and design, and management information systems. Four full chapters are devoted to application software including word processing, desktop publishing, spreadsheets, integrated packages, presentation graphics, and data base management. A final chapter addresses the current issues of computer phobia, software piracy, licensing, computer crime, viruses, security, privacy, and computer careers.

CHAPTER ORGANIZATION

Understanding Computers is organized into five sections that each focus on a central theme. This structure works well for most instructors but offers the flexibility needed for those who wish to follow a different route. The chapter content is summarized as follows.

PART I—COMPUTERS AND INFORMATION SYSTEMS

This section introduces the reader to the world of computers. Topics include why computers are needed, what is a computer, different types of computers,

and a general introduction to the types of software used on today's computer systems. This section gives the student an exposure to the concepts and terms that will be developed in greater depth throughout the course.

Complex topics are introduced early in the book and then covered in depth in later chapters. For example, the subjects of computer hardware, input/output, spreadsheets, word processing, data base, integrated software, and communications are each introduced briefly in Chapter 1. Later chapters develop each topic more fully.

PART II—HARDWARE SYSTEMS

The four chapters in this section cover the major topics relating to computer hardware. This ranges from a discussion on bits and bytes to laptops, from RAM and ROM to data communications. Included are topics such as microprocessors, PS/2, data entry, display screens, printers, plotters, disk storage devices and file organization, networks, communication systems, and micro-mainframe links. Most of the material relates to PC hardware and covers the hardware in widespread use as well as newer developments such as the 80286 and 80386 based computers, VGA and Multi-sync screens, and CD ROMs.

PART III—SYSTEMS AND SOFTWARE

This section contains five chapters on software and related topics. The section begins with a discussion on operating systems, primarily PC-DOS. The use of DOS and some basic commands are discussed. Next an overview of application software is presented with a discussion on the use of menus, templates, help screens, and how software is installed. The last three chapters cover the major software applications: word processing, spreadsheets and data base management. Other related material is provided on desktop publishing, three dimensional spreadsheets, integrated software, resident software, presentation graphics, CAD/CAM, and project management.

PART IV—DESIGNING AND IMPLEMENTING INFORMATION SYSTEMS

This section proceeds from the micro to the macro view of systems. It begins with programming concepts and establishes why programs are necessary. Program development tools such as structured methodology are discussed as are the major procedural languages. Fourth generation languages are also examined and why they are so important today. Next we cover systems analysis and design covering the life cycle from the feasibility study, through analysis, design, programming, implementation, and maintenance.

PART V—COMPUTERS AND SOCIETY

The text is ended with a discussion of social issues that have been introduced as a result of the computer impact. These issues include computer phobia, software piracy, software licensing, computer crime, viruses, privacy, security,

and ethics. The last section of Part V discusses various computer careers that are of interest to the student who wants to pursue a computer based career.

APPENDICES

Some topics are considered optional by instructors of an introductory computer course. These have been collected into the appendices and can be used as required or left out of the mainstream of the course at the professor's discretion. Included in Appendix A are computer history, computer generations, the history of languages and software and the first PCs. Appendix B covers number systems as they relate to the computer.

FEATURES

Writing Style

The writing style is *conversational in tone and attempts to be light and interesting* to retain the attention of the student and to encourage further involvement in the subject matter.

Use of Photographs and Figures

The book is highly visual in the sense that there are figures, photographs, and/or graphic art on most pages to support the textual material. These are accompanied by descriptive captions that provide further support to the related topic in the text.

Inserts

Most chapters have inserts on special topics such as "Why the Need for Large Memory Capacity," "E-Mail—The Alternate to a Postage Stamp," and so on. Inserts are also used when a particularly difficult concept is presented in order to give an alternate perspective on the topic.

Photo Essays

Photo essay inserts are also included in most chapters. These essays add spice to the chapter by presenting a visual tour of a specific topic such as WordPerfect 5.0, desktop publishing, expert systems, and Microsoft Excel, that is related to the chapter content. One of these essays is used in Chapter 1 to show a variety of fields where computers are being used. Another is used to show the benefits of desktop publishing in Chapter 8.

LEARNING AIDS IN THE BOOK

Each chapter begins with chapter objectives which are called "A View of the Chapter Ahead." Objectives are stated in a manner to promote "understanding" as suggested by the book title.

Each chapter ends with a series of review questions. Answers will be provided in the instructor's manual. There are three types of questions used: 1) Fill-in Questions, 2) Matching Questions, and 3) Discussion Questions.

Chapters contain boldfaced keywords with a summary of terms at the end of the chapter. A chapter summary highlights and reviews major topics at the end of each chapter which is useful for test preparation. An extensive glossary and complete index are included at the end of the book.

SUPPLEMENTS PACKAGE

A collection of booklets are available for both students and instructors of the course. These supplements are as follows.

1. Software Tutorial—*Learning DOS, WordPerfect 4.2, Lotus 1-2-3 (2.01)/TWIN, and dBASE III Plus*—This tutorial gives introductory coverage of DOS and the three major software packages in use today. The tutorial contains instruction on the use of the software, and keystroke exercises and other challenging exercises are included. Student versions of the software are available with this tutorial.
2. Software Tutorial—*Learning DOS, WordPerfect 5.0, Lotus 1-2-3 (2.2), and dBASE III Plus*—This tutorial gives the same coverage as the one above but uses the most recent release of the three major software packages.
3. A separate BASIC programming manual is available for courses that teach this language. The BASIC used is IBM PC BASIC but mostly uses the generic commands that are found on most BASIC interpreters. As a result of this treatment the instructor can use this manual for most versions of BASIC.
4. *Study Guide*—This guide written by Anne Kelly and Franca Giacomelli is available to assist the student in preparing for tests and exams. Included is an overview of the chapter, summary, sample test questions, and learning aids, such as crossword puzzles.
5. *Instructor's Manual*—Prepared by the author of the text, this manual supports the book with chapter descriptions, learning objectives, vocabulary, teaching tips, and answers to review questions.
6. *Test Bank*—A set of test questions is included in the instructor's manual for each chapter of the text. Each section includes fill-in, matching, and multiple choice questions with answers provided.
7. *Hypergraphics*—A software package that provides automated presentation graphics for instructor support. Using a PC and projector screens graphics are presented to support the course lectures. Review and test questions with automatic marking are also provided. See your Prentice Hall representative for further details.

OTHER SUPPLEMENTS

Prentice Hall also provides a number of supplements to support instructors of introductory computer courses. Included are transparency masters and test generation software. Ask your Prentice Hall representative for details.

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